The New Methods of Visualisation of the Cadastral Data in Poland

Marcin Karabin, Robert Olszewski, Dariusz Gotlib, Krzysztof Bakuła, Research Worker and Anna Fijałkowska (Poland)

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SUMMARY

In Poland the cadastral system is a 2D based system. The system uses 2D parcels in order to register rights to the land, but according to the cadastral law in the Polish cadastral system there are registered 3 types of cadastral objects: land parcels, buildings and premises. Geometrical data concerned parcels and buildings are shown on cadastral maps. Nowadays visualisation of cadastral objects is comming more sophisticated in cases of multiple use of space above parcel and with more complex construction of the buildings. Also various untypical 3D objects located underground, like subway are not shown on cadastral maps. Additionally, the third object of the basic cadastral objects, i.e. premises - does not have its representation in the graphical part of cadastre and only its descriptive attributes are recorded in relation to a building. There is no geometric data, referred to premises in the cadastre and the relevant documentation, in the analogue form (views of premises i.e. Sheets of the Architectural and Building Inventory of Premises) exists only at Architectural and Building Offices (District Office). Views of premises are also attached to notary deeds of sale.

In paper there will be shown the results of researches concerned to study the new methods of visualisation of cadastral data in Poland. Researches was done at Warsaw University of Technology. Researches was done by a group of specialists (cadastral surveyors, geo-informatics, cartographers, remote sensing specialist) lead by author of paper, within the confines of research grant.

The first part will be focused on methods of visualisation of parcels in the cadastre i.e. visualisation of attributes of boundary points, status of boundary lines, visualisation of boundaries combined with data from other sources like digital terrain model etc.

The second part will present the analysis of possibilities to develop models of premises for the

needs of visualisation in the cadastre, basing on the existing architectural documentation, as well as the analysis concerning the adaptation of developed models of buildings' interiors (BIM) to the needs of the cadastre. At this point technical issues related to the accuracy of projection of geometry of premises occur, along with the issues related to locating those models in the assumed coordinate system, with respect to x,y coordinates.

The third part will present the analysis of possibilities to develop models of metro tunnels for the needs of visualisation in the cadastre, basing on the existing surveying documentation i. e. LiDAR data of the interior of the tunnels and technical documentation of tunnels. It will not only allow to make visualisation of a tunnel but it will make a first step for registration such objects in a cadastre using layer approach (3D cadastre).